University of Alberta

Procrastination, Self-efficacy Calibration, Anxiety, and Achievement in Undergraduate Students

by

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Abstract

The current study had two primary purposes. The first was to investigate the nature of the relationship between procrastination and motivation variables such as self-efficacy for learning and performance, self-efficacy for self-regulated learning, test anxiety, writing apprehension and achievement within two task domains—studying and writing. The second purpose was to investigate the relationship between the degree of mis-calibrated self-efficacy beliefs and procrastination tendencies and achievement (i.e., do those who are overconfident in their capabilities tend to be high or low procrastinators?). The results indicate that there is no difference in procrastination tendencies within each domain but there is a difference in the way motivational variables are related to procrastination. Students demonstrated some degree of miscalibration between predicted and actual performance, but this was not found to be related to procrastination. Implications for practitioners as well as future research directions are discussed.

Dedication

To Mom

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Table of Contents

Chapter I
Introduction.....1
Literature Review.....3
Self-Efficacy..... 3
Procrastination and Self-efficacy..... 7
Self-Efficacy Calibration and Procrastination.....10
Self-Efficacy for Self-Regulated Learning and Procrastination.....12
Anxiety and Procrastination.....14
Procrastination for Writing and Studying.....16
Procrastination and achievement.....17
Summary and Interpretation.....19
Research Questions..... 20
Hypotheses.....21

Chapter II
Methods..... 22
Participants.....22
Measures.....22
Self-efficacy.....22
Procrastination.....24
Test Anxiety.....26
Writing Apprehension.....27
Performance/Achievement.....28
Procedure..... 28

Chapter III
Results.....31
Bivariate Correlations.....32
Paired T-tests.....34
Regression Analyses.....35
Prediction of Achievement.....38
Calibration.....39

Chapter IV
Discussion.....42
Self-Efficacy and Procrastination.....42
Procrastination and Task Domains..... 44
Procrastination, Test Anxiety and Writing Apprehension.....47
Procrastination and grades..... 48
Calibration.....50
Applications for Practitioners.....51
Limitations and Future Directions..... 52
Conclusions.....54

References.....56
Appendix.....61

List of Tables

Table 1. *Means, Standard Deviation and Reliabilities for Procrastination and Other Variables*..... 31

Table 2. *Means, Standard Deviations, and Reliabilities for Repeated Variables*..... 32

Table 3. *Correlations for Procrastination, and other major variables*..... 36

Table 4. *Accuracy of Predictions*..... 40

Chapter I - Introduction

Student motivation is seen as one of the keys to success in a university setting. Therefore, the antithesis of motivation, procrastination, can be seen as a potential detriment to success among these same students. Procrastination is often seen as an amusing or light-hearted psychological construct and may not even be considered to be worthy of investigation, evaluation or remediation. However, procrastination—defined as purposefully wasting time or putting off a task that should be done (Tuckman, 1991)—can have negative effects on academic success. Procrastination can contribute to students delaying studying or beginning a paper to the point where they need to engage in last minute cramming, or hand in late assignments, or fail to complete assignments. In addition, procrastination may cause students to experience stress, anxiety or to produce a product that is not reflective of their abilities (Ferrari, Johnson & McCown, 1995). Ferrari (1994) relates procrastination to "low self-confidence and states of high social anxiety, depression, neurosis, public self-consciousness, self-handicapping, forgetfulness, disorganization, non-competitiveness, and lack of energy" (p. 673). Although delaying tasks is usually not beneficial, a surprising number of students report procrastinating. The estimates of students who report procrastinating range between 50% (Solomon & Rothblum, 1984) to 70 % (Ellis & Knaus, 1977). Steel (2007) goes as far to say that procrastination behavior among university students could be as high as 95%. In addition to procrastination during post secondary education, Steel (2007) indicated that procrastination chronically affects 15-20% of adults in the general population.

Despite the high rates of self-reported procrastination tendencies among students and the possible negative effects of the behavior, there has been limited inquiry into this

phenomenon. Even less inquiry has focused on the way in which such motivational variables such as self-efficacy—beliefs in one's capabilities to perform a specific task—relate to procrastination tendencies. Not all procrastinators report adverse effects and actually see procrastination as functioning in a positive manner for them (e.g. Chu & Choi, 2005; Klassen, Krawchuk, Lynch & Rajani, 2007), but in order to assist those who are adversely affected by procrastination, one must first discover how motivational characteristics and procrastination operate amongst university students.

In this study I investigate the relationship between various motivational variables such as self-efficacy, self-efficacy for self-regulated learning, and anxiety, to procrastination and performance within two common academic domains—writing a final examination and writing a term paper. In addition to the important contributions research in this area can provide in terms of assisting those with problematic procrastination, it also contributes to developing motivational theory. Often when motivation is researched, it is more common to assess how motivated behavior positively affects student functioning. It is far less common to study the correlates and effects of a lack of motivated behavior, in this case, procrastination. In the next section a thorough examination of the motivation and procrastination literature will be provided. First, a brief overview of self-efficacy will be presented and then discussed in terms of its relationship to procrastination. Second, other motivation variables and hypothesized procrastination correlates such as self-efficacy for self-regulated learning, test anxiety and writing apprehension, are examined in terms of their contribution to understanding procrastination. Finally, the current literature on the effect of procrastination on

performance is reviewed. This literature is summarized and interpreted within the context of the current study.

Literature Review

Self-Efficacy

People's belief in their own skills and abilities strongly influences what they can and cannot do, and affects how they approach and perform tasks. Self-efficacy is one's belief in one's capability to perform a task. These beliefs are said to affect human behavior in several ways. Bandura (1997) indicates that the role of self-efficacy beliefs in human functioning is that "people's level of motivation, affective states, and actions are based more on what they believe than on what is objectively true" (p.2). Bandura (2006) further notes that self-efficacy beliefs strongly influence the goals people set for themselves and the effort and commitment they will put forth towards that goal. Self-efficacy beliefs also affect the way in which people behave when faced with adversity, their resilience, as well as their emotional reactions to stressful environmental demands. Furthermore, self-efficacy beliefs have a profound effect on the outcomes people attain (Bandura, 2006).

Pajares (1996) indicates that individuals choose tasks which they believe they can successfully accomplish and avoid those in which they lack confidence. Pajares goes on to explain that people's self-efficacy beliefs shape how much effort they devote to a specific task, how long they will continue, and how resilient they will be when faced with an obstacle. These beliefs also influence people's thoughts and emotions. Pajares (1996) suggests:

> People with low self-efficacy beliefs may believe things are tougher than they really are, a belief that fosters stress, depression, and a narrow vision of how best to solve

> a problem. High self-efficacy, on the other hand, helps create feelings of serenity in approaching difficult task and activities. As a result of these influences, self-efficacy beliefs are strong determinants and predictors of the level of accomplishment that individuals finally attain (p.545).

Bandura (1993) states that there are three different levels in which perceived self-efficacy contributes to academic achievement. The first is the student's beliefs in their own abilities to control and to regulate their own learning and to master academic activities. The second is the student's knowledge of the effect of self-efficacy beliefs on motivation and performance. The third is that the student experiences academic successes. It can be seen that academic achievement and individual well-being are strongly influenced by self-efficacy beliefs. However, in the study of self-efficacy, sometimes researchers misconstrue the way in which this construct should be measured. According to Bandura (2006), when measuring self-efficacy, the self-efficacy scale and task need to be closely related. Self-efficacy measures should always be task and domain specific. Pajares (1996) stated that often educational researchers employ global or inadequately specified measures which tend to weaken effects. Using generalized or global self-efficacy measures tends to portray self-efficacy as a personality trait rather than the context-specific confidence judgments which Bandura (1986), originally intended them to be. Pajares (1996) suggested that the global measures tend to obscure effects and reduce predictive power. He suggested that if a study's aim is to have explanatory and predictive power, researchers need to heed Bandura's (1986, 1997) warnings and ensure self-efficacy measures are tailored to the exact performance outcome under investigation. As a simplified example, if one were measuring self-efficacy for math addition performance, the self-efficacy scale would need to specifically address the students' self-beliefs for that criterial task. Therefore, an item on such a scale would

measure self-efficacy by asking "How confident are you that you can get at least 50% correct on the math addition task?", whereas global measures of self-efficacy would contain an item such as "How confident are you in school?" Although it is apparent that results on measures such as these would be related, in order to have greater predictive and explanatory power as well as closer adherence to self-efficacy theory, it is important to heed the warning and ensure measures of self-efficacy are as closely related to the task or domain under investigation as possible.

Another difficulty in self-efficacy research is that it is often confused with related, but conceptually different, constructs. Bandura (1997) indicates that two common constructs that are often grouped with self-efficacy are self-concept and self-esteem. In the study of self-efficacy, it is important to distinguish between these concepts. Self-concept is one's overall view of the self that is often measured by the individual rating themselves on a number of descriptive attributes (Bandura, 1997). Horowitz (2000) notes that self-concept evaluations can include such things as: body image, values, goals, views about self in regard to others, plans, intentions, and status in the world amongst others. Bandura (1997) indicates that usually what is measured is the discrepancy between ideal and actual self concepts in order to determine the role self-concept plays in personal functioning. On the other hand, self-esteem is a more global evaluation that can be based on one's personal appraisal of their accomplishments and capabilities, their values, their bodies, other's view of them, and even one's possessions (Tesser, 2000). Therefore, self-concept is what we think about ourselves, our overall general conceptualization of who we are, whereas self-esteem is how we feel about that conceptualization. Bandura (1997) indicates that self-esteem, in particular, is often used interchangeably with self-efficacy

although the two concepts vary widely. He notes that the fundamental difference between self-esteem, self-concept, and self-efficacy is that the former two refer to judgments of self-worth whereas the latter refers to judgments of personal capabilities to perform a specific task. He adds that there is no fixed relationship between whether an individual likes or dislikes oneself and whether or not they believe they are efficacious in an area. Generally, people can indicate whether they lack skills in an area but if this area has no value to them, then it is unlikely to affect that individuals' self-worth to any great extent. Bandura (1997) indicates that people need more that just liking themselves to perform well at given endeavors. He goes on to explain that the self-efficacy beliefs will affect how much effort people will demonstrate, what goals they set and their subsequent performance, whereas self-esteem should not affect either the goals or the performance outcomes. Therefore, when constructing studies in order to have good predictability between self-efficacy and performance, it is important to ensure the task and the self-efficacy measure have adequate specificity as well as that the appropriate definition of self-efficacy is employed.

Given that self-efficacy has such a strong behavioral impact, one would expect that beliefs in one's own capabilities has direct effects on academic performance. Pajares (1996) indicates when links between self-efficacy and achievement are not found, often it is most likely due to problems with task or domain specificity. Links between self-efficacy and academic achievement have been generally well established in a variety of domains (see Bandura, 1997 and Pajares 1996, for a review). As will be discussed in the next section, links have been found between self-efficacy and procrastination; however,

the links between self-efficacy calibration and procrastination have not yet been investigated.

Procrastination and Self-Efficacy

According to Schouwenburg (2004), there are two ways in which procrastination can be understood. First, it can be conceptualized as a behavior, and second as a general habit or trait. When a task is simply delayed and the postponement is unplanned, it can be considered a behavioral manifestation of procrastination. However, when task postponement becomes habitual or chronic, then procrastination is considered to represent a trait (Schouwenburg, 2004). Schouwenberg noted that in the current research on procrastination most researchers and counselors conceptualize procrastination as a personality trait (Schouwenburg, 2004). Therefore, one would expect that for those that have a tendency towards procrastination, the postponement of tasks will tend to manifest across a variety of situations.

Solomon and Rothblum (1984) describe procrastination as "the act of needlessly delaying tasks to the point of subjective discomfort" (Ferrari et al. 1995, p.72). However, Ferrari et al. (1995) note that in the strictest sense, procrastination refers to the behavior of postponing a task, but postponing a task does not necessarily imply discomfort. He makes a distinction between functional and dysfunctional procrastination. Ferrari (1994) explains that if one were prioritizing tasks or required additional information prior to beginning a task, procrastination would be considered functional as doing so would optimize the likelihood of successful task completion. On the other hand, those who frequently engage in procrastination and postpone starting or completing tasks to their detriment are said to use dysfunctional procrastination (Ferrari, 1994). Steel

(2007), indicated that despite some discord in the literature as to the most appropriate definition of procrastination, there seems to be consensus that at the very least there "must be a postponing, delaying, or putting off of a task or decision" (p. 66). Although it is conceivable to see possible benefits of functional procrastination (see Chu & Choi, 2005; Schraw, Wadkins & Olafson, 2007), it is dysfunctional procrastination that will be the main focus of this article.

It seems logical that self-efficacy and procrastination may be related. If self-efficacy affects an individual's choice of course of action and the amount of effort and persistence they will expend when faced with obstacles, then people who do not have beliefs in their capabilities to perform a task may avoid or delay the task (Bandura, 1997). Therefore, one could hypothesize that those with higher self-efficacy may be less likely to procrastinate. Bandura (1993) reported that in expectancy-value theory, motivation is governed by the belief that a behavior will produce a certain result and by the perceived value of that result. When one believes that they are capable of producing a desired result and they consider the outcome desirable, they will take the steps necessary to lead them towards that desired result and thus, be more likely to achieve the desired outcome. Therefore, when a student perceives they have a weakness or difficulty in an area, they may take on a "why bother?" attitude and thus, have diminished performance or avoid certain situations, resulting in procrastination.

There have been a few studies that link procrastination with self-efficacy. However, many of the studies evaluating the relationship between self-efficacy and procrastination include a measure of global self-efficacy, rather than the task specific measure suggested by Bandura (1986). For instance, Tuckman (1991), in the development

of the Tuckman Procrastination Scale, set out to establish the validity of his measure in relation to behavioral procrastination and a self-report measure of global self-efficacy. He reported that self-efficacy was found to be significantly inversely related to procrastination. Similarly, a study conducted by Martin, Flett, Hewitt, Krames, and Szanto (1996), investigated the relationship between a variety of personality factors as they are related to depression and somatic symptoms. Two such personality factors were self-efficacy and procrastination. Again, this study used a global measure of self-efficacy, and found the relationship between self-efficacy and procrastination to be significantly negatively related. In addition, depression was found to be inversely related to self-efficacy and positively related to procrastination.

One study by Haycock, McCarthy and Skay (1998), attempting to heed Bandura's (1986) advice to use self-efficacy measures that are context and task specific, asked college students to imagine a term project as they responded to the self-efficacy items. Their results were similar to other studies of the relationship between self-efficacy and procrastination, showing a negative relationship (Ferrari, Parker & Ware, 1992, Steel, 2007; Tuckman, 1991; Wolters, 2003).

Wolters' (2003, 2004) attempted to explore the links between self-efficacy for academic tasks and academic procrastination in college students. Unlike previous studies, Wolters (2003, 2004) used a measure of self-efficacy that asked students to report how capable they felt on tasks they were assigned in a specific class. He found that students with greater perceived self-efficacy for an academic task were less likely to report delaying or starting their work. He also indicated that self-efficacy individually accounted for a significant portion of the variance in procrastination (Wolters, 2003).

Self-Efficacy Calibration and Procrastination

Whether using a global measure or task specific measure of self-efficacy, the results generally indicate that there is an inverse relationship between self-efficacy and procrastination. Therefore, students who have doubts in their abilities are more likely to procrastinate than those who do not. What remains to be investigated is how self-efficacy calibration relates to procrastination. Self-efficacy calibration refers to the degree that one's prediction about their capabilities to perform a task is commensurate with their performance on that same task. The nature of the relationship between self-efficacy calibration and procrastination can only be hypothesized at this point. Given the previous research on self-efficacy, one would expect that incongruence of self-efficacy beliefs would have an effect on performance. Findings indicate that for the most part, university students tend to overestimate their self-efficacy beliefs. Kruger and Dunning (1999) studied undergraduate performance in a variety of domains such as humor, logical reasoning, and grammar to investigate what they called the *above average effect*, which is the tendency of the average person to believe he or she is above average. Specifically, they wanted to examine whether deficient metacognitive skills explain the tendency of people to be overconfident in the estimates of their performance. They found that those who have a tendency to perform in the bottom quartile not only overestimated their beliefs, but thought that they would be above average compared to their peers. Those students who performed poorly were unaware of it—they lacked the necessary skills to see that their own skills were poor. Conversely, those who were in the upper-most quartile in terms of performance underestimated their abilities compared to their peers, but tended to be fairly accurate in predicting their own performance. The authors explain

that for the upper quartile performing individuals, the participants had succumbed to the "false consensus effect." They believed that if they had performed well, the other participants must have as well. Kruger and Dunning (1999) demonstrated that when the students were made more competent in the area (i.e. they participated in a training session), they were then better able to evaluate their performance and became better calibrated.

Current research on the relationship between self-efficacy and procrastination indicates that being confident in one's capabilities tends to be negatively related to procrastination. When students are asked to predict their confidence levels on specific tasks, students can either be accurate, under-confident or overconfident in their predictions. It could be hypothesized that those who are overconfident in their capabilities in a specific area may be more apt to get the task done early, but may be equally as likely to be overconfident enough to feel that they can delay the task until the last possible minute. They may use this overconfidence to their disadvantage by creating a false sense of security in which they erroneously believe that regardless of how long they postpone the task their performance will not suffer. On the other hand, those that feel least confident may be prone to put a task off due to fear of failure which is a common explanation for procrastination (Solomon & Rothblum, 1984; Rothblum, Solomon & Murakumi, 1986; Schouwenburg, 2004) or perhaps take on a "why bother" attitude. One could also see how those who are underconfident may procrastinate less as they see the necessity to begin right away in order to offset their perceived lack of capabilities. Yet another question related to self-efficacy calibration is whether those that have realistic views of their capabilities are less likely to procrastinate. Perhaps those with

a realistic understanding of their capabilities are better able to appropriately evaluate the amount of time required to complete the task based on their level of capability. The nature of the relationship between self-efficacy calibration and procrastination tendencies has yet to be explored. Therefore, it is important to investigate how overconfidence and underconfidence in ones' capabilities influences procrastination patterns for specific tasks such as writing a term paper, doing weekly reading assignments, and studying for mid term and final exams.

Self-Efficacy for Self-Regulated Learning and Procrastination

Academic self-regulation involves the student controlling their own learning metacognitively, motivationally and behaviorally (Zimmerman, Bandura, & Martinez-Ponz, 1992). Self–efficacy for self-regulated learning is defined as a person's confidence in his or her ability to select the appropriate strategies and modify behavior in order to successfully manage the demands of learning. Procrastination is inconsistent with self-regulatory behavior and, thus, procrastination has been described as being a function of self-regulatory failure (Wolters, 2003).

In a study comparing the relationship of self-regulated learning to procrastination, Wolters (2003) found that procrastination was "most clearly related to students' beliefs regarding their ability to complete academic tasks successfully and their desire to avoid hard work or extended effort when completing school tasks" (p. 184). In addition, Wolters found that those who had less confidence in their abilities to successfully complete academic tasks were more likely to report a greater frequency of task postponement than their more confident counterparts.

Although other studies have investigated self-regulated learning and procrastination, until recently there have not been studies that directly investigate the link between self-efficacy for self-regulation and procrastination. Klassen, Krawchuk and Rajani (in press), proposed that because procrastination has been strongly linked to self-regulation and failure to self-regulate, it may also be as strongly related to the students' confidence in their ability to self-regulate their learning. In two concurrent studies, Klassen et al. (in press), surveyed 261 undergraduate students to investigate whether self-efficacy for self-regulation was a significant predictor of procrastination practices, after attributing for the variance from GPA, general self-efficacy, self-regulation practices, general academic self-efficacy and self-esteem. Indeed, after controlling for the listed variables, self-efficacy for self regulated learning was found to be the strongest predictor of procrastination. Klassen et al. suggested that in order to ward off procrastination, one not only needs to possess the skills necessary to self-regulate but also must have the confidence to implement those strategies. The second study by Klassen et al. (in press) investigated the cost of academic procrastination in undergraduate students. They found that the amounts of daily procrastination and self-efficacy for self-regulation were strongly related and were the best predictors of the impact of negative procrastination. The predictive ability of self-efficacy for self-regulation in the study of procrastination would be further strengthened by investigating the nature of this predictive ability in light of other potential variance contributors in procrastination such as anxiety and writing apprehension which will be discussed in the next section.

Anxiety and Procrastination

The negative impact of anxiety in academic domains has been generally well documented; however, there has been less research investigating the relationship between anxiety and procrastination within an academic domain. Solomon and Rothblum (1984) found that one quarter of their university student sample procrastinated in tasks such as reading assignments, writing term papers, and studying for exams. They also noted that procrastination was related to other psychological factors such as anxiety, depression, irrational cognitions, and self-esteem. Rothblum, Solomon and Murakami (1986) conducted a study with undergraduate students to investigate psychological variables related to procrastination. They assessed anxiety as a trait by using the Test Anxiety Scale (Sarason, 1972) as well as state anxiety by using the state portion of the State-Trait Anxiety Inventory (STAI; Speilberger, 1983). In addition, Rothblum et al. (1986) also used a measure of physiological symptoms related to anxiety (Fenz, 1967). They found that those who scored high on procrastination also scored high on test anxiety and that women demonstrated greater test anxiety than did men. High procrastinators were also more likely to report weekly state anxiety and more physical symptoms related to anxiety than were those with low procrastination. Another study by Haycock et al. (1998), used the STAI to measure state-trait anxiety in university students. They found similar results as Rothblum et al. (1986). Procrastination was significantly related to both state and trait anxiety.

The primary goal of Cassady and Johnson's (2001) study was to develop a new scale to measure cognitive test anxiety. They defined cognitive test anxiety as negative cognitions that develop in response to evaluative situations. The cognitions produced are

often ones of low confidence. The individual may fear the consequences of failure and worry performing poorly compared to peers and disappointing parents. In addition the individual may worry about not being prepared or have general worry regarding being evaluated (Cassady & Johnson, 2001). Therefore, cognitive test anxiety was deemed to be an important factor related to performance deficits in those students who have test anxiety. The second goal of the Cassady and Johnson (2001) study was to examine the relationships among cognitive test anxiety and other relevant variables including procrastination. They found a weak, but significant relationship between cognitive test anxiety and procrastination and felt that the relationship was due to situational factors of final examination studying rather than to cognitive test anxiety.

Anxiety is particularly interesting to the study of procrastination as it is also related to self-efficacy and academic achievement. Ferrari et al. (1995) indicates that procrastinators tend to suffer from higher levels of anxiety and Bandura (1997) suggests that those who have lower self-efficacy can be vulnerable to anxiety in academic domains. Bandura (1997) indicated that at the college level, those that have a low sense of efficacy have high levels of anxiety and stress-related physical symptoms. He explains that those with high efficacy beliefs tend to be better able to handle anxiety-ridden situations because those who have beliefs in their capabilities to control or handle the situation do not allow themselves to get overly aroused. On the contrary, those who have lower beliefs in their abilities to handle a situation will dwell on their deficiencies and envision negative scenarios that may intensify the threatening situation and subsequently impair performance.

Procrastination for Writing and Studying

Writing papers is a common university activity and is also a task where many students report that they have a tendency to procrastinate. In fact, Solomon and Rothblum's (1984) study found that approximately 40% of students procrastinated to a great extent when it came to writing a term paper. Fritzsche, Young and Hickson (2003) noted that students report they are more likely to procrastinate when writing a paper than any other activity. The authors of this study investigated the relationship between academic procrastination of writing behavior, writing anxiety, and grades. Their primary hypothesis was that "academic procrastination was expected to be associated with anxiety about writing a major paper, delay behaviors on the writing assignment, less satisfaction with the writing experience, lower paper grades, and lower grades in writing-intensive courses" (p. 1550). The results indicated that indeed academic procrastination was related to increased anxiety, postponement of writing the paper, less satisfaction with the paper, and lower grades. In their qualitative study, Schraw, Wadkins and Olafson (2007) found that students generally did not think procrastination affected their performance in their courses but did note that procrastination could be potentially detrimental to paper writing. There were two reasons listed for the potential detrimental effect. The first was that students spent less time planning, organizing and researching, and the second was that they did not revise their papers due to procrastination. However, despite handing in poorly written papers, most students reported that they obtained satisfactory grades.

Less research has focused on the amount of procrastination university students demonstrate when studying for exams. One study by Schouwenburg and Groenewoud (2001) asked university students to indicate estimations of how much they study during a

12 week period prior to an examination. Not surprisingly the students reported that far in advance of the examination they rarely study but the amount greatly increases as they test approaches. Pychyl, Morin, and Salmon (2000), asked 32 undergraduate students to provide estimates of their study plans for the eight days prior to an examination and then took a log of their actual study behavior within that time. They found that students who rated themselves higher in procrastination reported starting studying later and studying less than those who scored lower on procrastination.

As both exam preparation and paper writing are two common university activities, it is not surprising that students report procrastinating on these activities at least to some degree. The relationship between procrastination and motivation and the way in which these variables function within specific academic domains remains unclear. It is important to investigate whether motivation and procrastination demonstrate the same patterns across academic domains and, thus, a unique facet of the current study is that procrastination and motivation are investigated in the context of writing a term paper as well as an exam. In addition, student performance for these activities is also evaluated, although there have been some mixed results as to the effect of procrastination on academic performance.

Procrastination and achievement

Despite being called a negative behavior, it has been shown that procrastination does not necessarily lead to poor performance. For instance, in college students, individuals scoring high on procrastination did not do significantly worse on an exam than low procrastinators even though they had studied less (Pychyl et al., 2000). In a qualitative study by Schraw, Wadkins, and Olafson (2007), when the students were asked

about the relationship between grades and procrastination, 80% of the students felt there was little or no relationship and the remaining 20% reported that there was a positive relationship between the two. As mentioned previously, Ferrari et al. (1995) indicated that some students may feel they work better under pressure and thus, purposefully postpone tasks in order to ensure successful completion. However, this finding is contrary to other studies involving college students, which found that procrastination does indeed result in a detriment to performance (Rothblum, Solomon, & Murakami 1986; Wesley, 1994). Klassen, et al. (in press), found that the most negatively affected procrastinators expected and received lower grades than their counterparts. Even though academic procrastination has been labeled a behavior that warrants treatment (Ferrari et al., 1995), there are still mixed results as to the detrimental effect it can have on student performance. Perhaps motivational factors, such as self-efficacy can assist in explaining why some students' procrastination tendencies result in poor performance while others do not. The mixed results may also reside in the way in which procrastination tends to be measured. Often students are given a measure of academic procrastination behavior, i.e. (e.g., Procrastination Assessment Scale students; Rothblum, 1984; Aitken Procrastination Inventory; 1982; Tuckman Procrastination Scale, 1991), labeled as high or low procrastinators, and then a relationship with grades is determined between those labeled as high and low procrastinators. It could be hypothesized that the relationship between procrastination and performance could be made clearer if the students were asked specifically if they procrastinated on a certain academic task, (i.e. whether they had delayed studying for the final examination or postponed getting started on the paper, etc.) and then the researcher could evaluate if there is a relationship to their performance on

those same tasks. The current study uses this approach to investigate the function of procrastination on grades in both an examination and term paper writing situations.

Summary and Interpretation

The research into the relationships among self-efficacy, anxiety, and procrastination leaves many questions unanswered. If an individual's beliefs in his or her own capabilities generally affect subsequent behaviors, then both procrastination patterns and anxiety levels should be influenced by these beliefs. An important question that arises is what happens if these beliefs are inaccurate? Although there have been some mixed results, the studies described above have demonstrated that generally those with higher self-efficacy beliefs tend to procrastinate less, perform better, and also experience lower anxiety than those who have low self-efficacy beliefs. However, one could postulate that those who are overly confident in a particular area may choose to procrastinate and thus, feel a greater amount of anxiety in that area. Bandura (1989) indicated that some overconfidence is beneficial because it should improve performance; however, he cautioned that severe mis-judgments between beliefs and performance can be problematic. In this instance, the overconfidence could lead one to put off a task until the last minute and increase levels of anxiety which, in turn, could be detrimental to performance or grade earned. On the contrary, at the other end of the spectrum, those with unreasonably low self-efficacy beliefs, may also tend to procrastinate more because they envision a poor outcome. They have increased anxiety and procrastination which results in a detriment to their performance. The relationship between procrastination, and test and writing anxiety is also not yet clear.

Procrastination is an often overlooked phenomenon and thus, much more research is required in this area. Therefore the purpose of this study is twofold. The first is to investigate procrastination, self-efficacy, anxiety and achievement in real life academic situations that are meaningful to students. In order to adhere closely to self-efficacy theory, procrastination, self-efficacy and achievement will be measured in a context-specific manner. The second purpose of this study is to investigate the relationship between the accuracy of one's self-efficacy beliefs and relationship to procrastination in real life context specific situations.

In order to build upon the previous literature as well as address some of the gaps, several research questions and hypotheses were developed.

Research Questions

1. What is the nature of the relationship between procrastination and other motivational variables (i.e. self-efficacy for learning and performance, self-efficacy for self-regulated learning, test anxiety, writing apprehension)?
    - Does procrastination vary according to type of task?
    - What variables predict procrastination tendencies in each academic domain?
    - What factors predict general procrastination?
    - What is the relationship of procrastination on performance in each academic domain (i.e. term paper writing, examinations)
2. What is the nature of the relationship between self-efficacy and procrastination?

- What is the relationship between the degree of mis-calibrated self-efficacy beliefs and procrastination tendencies? (i.e., do those who are overconfident in their capabilities tend to be high or low procrastinators?)
- What effect does mis-calibrated self-efficacy beliefs have on performance in each task domain?

Hypotheses

1. Because self-efficacy promotes effort, persistence and resilience, it is hypothesized that there will be a negative relationship between procrastination and self-efficacy for learning and performance, self-efficacy for self-regulated learning, and self-efficacy for performance on each task. There will be a positive relationship between anxiety and procrastination. It is also hypothesized that procrastination will have a negative effect on performance in each academic domain. It is cautiously hypothesized that higher self-efficacy beliefs (self-efficacy for learning and performance, self-efficacy for self-regulated learning and specific self-efficacy beliefs about performance on a task) will be predictive of less procrastinatory behavior while test anxiety and writing apprehension will be predictive of a greater tendency towards procrastination.

2. Because students may misinterpret the demands of the task, it is hypothesized that students who have the greatest degree of mis-calibration in their self-efficacy beliefs (i.e. either underconfident or overconfident) will have a higher general and domain-specific procrastination tendencies. Mis-calibrated self-efficacy beliefs will have a negative effect on performance.

Chapter II - Methods

Participants

Participants were 148 undergraduate student volunteers (117 female, 30 male, 1 not reported) recruited from three undergraduate Educational Psychology classes at a public university in western Canada. There was an 85% participation rate from the three participating classes. The participants ranged in age from 19 to 43 ($M = 22.8$, $SD = 3.85$), and had GPAs ranging from 2.0 to 4.0 ($M = 3.17$, $SD = 0.38$). Participants were predominately from the Faculty of Education (97.3%). The participants were 4.1% first year students, 10.1% second year students, 41.2% third year students, 34.5 % fourth year students, 8.1% fifth year students, and .7% sixth year students. The majority of participants listed Canada as their country of birth (93.9%). Due to the research design, only those classes that included a term paper and final exam component were selected for the study.

Measures

Self-Efficacy

There were three measures of self-efficacy included in this study. The first was the 5-item self-efficacy for learning and performance scale which was adapted from a portion of the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich, Smith, Garcia & McKeachie, 1991, 1993). The MSLQ was designed with the purpose of assessing college students' motivational orientations as well as to evaluate the use of various learning strategies that assist in completing college course work. The self-efficacy for learning and performance scale measures one's own self appraisal about the

ability to succeed at a task as well as a person's confidence in their abilities to perform the task (Pintrich et al., 1991).

As originally published in the MSLQ manual, the self-efficacy for learning and performance scale contains eight-items: five self-efficacy items and three expectancy-value items. Reliability for the eight-item scale are reported by the authors to be .93 (Pintrich, et al., 1991). However, for the purposes of this study, only the five self-efficacy items were used thus omitting the three expectancy value items. In addition, each item was phrased "I am confident" rather than "I am certain" in order to adhere more closely with self-efficacy theory. Previous studies have used the five-item scale demonstrating reliabilities of .82 (Klassen et al., 2007) and .80 (Klassen et al., in press). Participants record their responses on a 7 point scale (1 "not at all true of me" to 7 "very true of me"). Scores on the five items are then totaled to give an overall score for that scale.

A second measure of self-efficacy used in this study is the self-efficacy for self-regulated learning scale (Zimmerman, Bandura, & Martinez-Pons, 1992). This scale was designed to measure students' perceived beliefs in their capabilities to perform a variety of self-regulated learning behaviors. Sample items for this scale include "How well can you finish homework assignments by deadlines?" and "How well can you organize your schoolwork?". The students responded on a seven-point scale (ranging from 1 "Not well at all" to 7 "very well"). This scale was found to have high reliability, with Cronbach's alpha of .87 (Zimmerman et al., 1992). In terms of validity, this scale has demonstrated strong correlates with other measures of self-efficacy, ($r = .51$, $p < .05$), with self-efficacy for academic achievement (Zimmerman et al., 1992). This scale has been used in other studies measuring the relationship between self-efficacy for self-regulated learning

and procrastination demonstrating high reliabilities with Cronbach's alpha of .80 (Klassen et al., in press) and .81 (Klassen et al., 2007).

As Bandura (1986) argued, items purporting to measure self-efficacy should be both context and task specific. Therefore, in the second and third round of data collection in this study, participants were asked to provide a rating of their confidence to obtain various scores on the course term paper and final examination as well as predict what grades (in percentage) they would be able to obtain on both the final examinations and the term paper. Using Bandura's (2006) method, participants were asked to rate their confidence in obtaining the grades listed in gradations of 5 percent, beginning at 45 percent and ending at 100 percent (e.g. "I am confident I can get at least 50% on the final examination). The students rated their confidence on a 100 point scale divided into intervals of 10. The scale descriptors ranged from 0 "cannot do at all", to 100 "highly certain can do" with a mid-point of 50 "moderately certain can do". To obtain the overall mean self-efficacy rating, the confidence ratings were summed and divided by the number of items (12 in this case). In this article, this scale will be termed self-efficacy rating for performance and the specific task under discussion will be specified. (i.e. self-efficacy for performance on the final or self-efficacy for performance on the term-paper).

Procrastination

Procrastination was measured using two measures, Tuckman's Procrastination Scale (1991) and a five item scale created and used by Wolters (2003). Tuckman's (1991) scale was deemed appropriate for this study as this scale was developed with the purpose of "detecting students who may tend to procrastinate in the completion of college requirements" (p.473). The 16 item scale is a single factor scale, tapping the respondent's

tendency toward task delay. Items are worded both positively and negatively. Examples of negatively worded items include "I needlessly delay finishing jobs even when they are important" and "I'm a time waster and can't seem to do anything about it" (Tuckman, 1991). Examples of positively worded items are "I put the necessary time into even boring tasks, like studying" and "I always finish important jobs with time to spare" (Tuckman, 1991). Participants respond to items on a 4 point likert type scale (1 "that's really not me" to 4 "that is me for sure"). Tuckman reports Cronbach's alpha reliability of .90. In order to demonstrate concurrent validity of the Procrastination Scale, Tuckman (1991), used a behavioral task which involved the students submitting up to 25 test items per week for 10 weeks in order to gain extra credit towards their grade. Performance on the homework task was found to be significantly negatively correlated (-.54) with procrastination. Overall, Tuckman (1991) concludes that the Procrastination Scale is able to provide valid, reliable, prediction or detection of college students "tendency to waste time, delay and intentionally put off something that should be done" (p. 478).

Other studies have used Tuckman's procrastination scale with college students and have found similar reliability and validity results. For instance, Howell, Watson, Powell, and Buro (2006), used the Tuckman Procrastination Scale (1991), along with two other measures of procrastination—the 12 item Procrastination Assessment Scale-Students (PASS, Rothblum, 1984), and students self-reported assignment procrastination. Results from this study indicated significant associations between the PASS and Tuckman's Procrastination Scale (.62, $p < .001$), as well as significant correlation between students self-reported assignment procrastination and Tuckman's scale (.30, $p <$

.05). In another recent study involving undergraduate students, (Klassen et al., 2007), found the reliability (Cronbach's alpha) of the Tuckman's Procrastination Scale to be .88.

The students were asked to rate themselves on general procrastination at the beginning of the semester; however, in addition it was of interest to investigate procrastination for specific academic tasks. For this purpose, a five item scale included in Wolters' (2003) study was selected. In Wolters' (2003) study, the five item procrastination measure was found to have high reliability of .87. As will be discussed in the procedures section, the Wolter's scale was used at two different data collection points—after the term paper was submitted and after the final examination was completed. Depending on what was being measured at a particular time (i.e. term paper or examination), a few words were altered in relation to the task being measured. For example, "I promised myself I would do something for the final examination, then put it off anyway" was changed to "I promised myself I would do something for the term paper, then put it off anyway" depending on what task procrastination was being measured.

Test Anxiety

Students were administered the 20-item Test Anxiety Inventory (TAI; Spielberger, 1980). Students responded on a four point Likert scale with descriptors "Almost Never" to "Almost Always" as an indication of how often they experience anxiety in testing situations. The TAI provides a total test anxiety score as well as subscale scores and contains two types of items—emotionality and worry—which were originally conceptualized by Liebert and Morris (1967). Emotionality is the physiological responses evoked by tests. An example of an emotionality item from the TAI is "I feel very panicky when I take an important test". The worry items are intended to measures anticipated

consequences of failure (Liebert & Morris, 1967). An example of an item that measures worry is "During tests I find myself thinking about the consequences of failing."

Studies that investigate the psychometric properties of the TAI indicate that the TAI is considered a reliable instrument, demonstrating a Cronbach's alpha of .93 for the total score (Gierl & Rogers, 1996; Taylor & Deane, 2002). The validity was tested by correlating the measure with various others instruments such as the State-Trait Anxiety Inventory (STAI; Spielberger, 1983) and was found to be a valid instrument to be used with college students as a measure of test anxiety (Spielberger, 1980). Dividing test anxiety into two components (worry and emotionality) is useful for the treatment of individuals with test anxiety but for research purposes, the two dimensional division does not provide additional information above what is described by the full composite score. In addition, the two dimensions (worry and emotionality) are usually found to be highly correlated and the total score is more reliable than the separate dimensions (Speilberger & Vagg, 1995). Therefore, for the purposes of this study, the total test anxiety composite score rather than the individual subscale scores will be used in the analyses.

Writing Apprehension

As a measure of writing anxiety, the students will be administered the Writing Apprehension measure (WA; Daly & Miller, 1975). This instrument is composed of 26 items. Participants respond on a 5 point Likert scale with the endpoints 1 "strongly agree" to 5 "strongly disagree". This scale has high split half reliability (.94) and high test-retest reliability (.94) (as reported by Bline, Lowe, Meixner, & Nouri, 2003). Daly & Miller (1975) reported a reliability coefficient of .92.

In order to demonstrate validity, Daly and Miller (1975) administered the writing apprehension measure to 167 adults at the beginning of a university extension course and then reported on the writing requirements of their current employment position. The results indicated that those classified as having high writing apprehension indicated that their occupations had significantly less writing requirements than those in low or moderate apprehension classification levels. Overall, this instrument is deemed to be a reliable and valid measure of writing apprehension (Daly & Miller, 1975).

Performance/Achievement

With the students' permission, grades on the term paper, final exam and overall course grade were collected from the instructor as a measure of performance. In order to ensure analyses are on the same metric and to avoid problems with scaling, grades collected were reported in percentage rather than university letter grade. Students were also asked to self-report their estimated GPA. In order to maintain confidentiality of the participants, the grades were obtained by student ID number only and not by name.

Procedure

Professors of 3rd and 4th year Educational Psychology classes, whose course syllabus contained a term paper and a final examination, were approached for participation in this study. Three out of four professors agreed to allow the researcher into their course to explain the study and to ask if students were interested in participating. The researcher used 10 to 15 minutes of class time three times during the semester and also 5 minutes of the students' time after the final examination.

The first round of data collection occurred within the first week of classes. The researcher entered the classroom and spoke to the class about the purpose of the study as

well as about ethical considerations and participant rights. In order to maintain confidentiality and as much anonymity as possible, all data were collected by student's identification number and not by name. In order to ensure no names were attached to any student data, the students were told that completing the survey reflected their consent and therefore a signature was not required. Those who chose not to participate or discontinue their participation needed only to return the questionnaire back blank. Copies of all surveys used in this study are included in the Appendix. The students who chose to participate were administered the first round survey which contained 7 items of demographic information, (student ID, age, sex, program of study, year in program, country of birth and estimated GPA), Tuckman's Procrastination Scale (16 items), Self-efficacy for Self-Regulated Learning Scale (11 items), Self-Efficacy for Learning and Performance Scale from the MSLQ (5 items), Test Anxiety Inventory (20 items), and the Writing Apprehension Scale (26 items). The students also predicted their overall course grade in both percentage and university letter grade.

Second round measures were collected in the class in which the term paper was due. The survey included the adapted version of Wolters' Procrastination Scale (5 items), and self-efficacy rating for performance on the term paper. Students also predicted the percentage they would receive on the paper. For the data collection regarding the final examination, it was necessary to split the survey into two separate parts. The reason the data needed to be collected in two parts is that in order to measure self-efficacy for performance on the examinations, the measure needed to be administered prior to the examination, otherwise the measure would be more indicative of the examination difficulty rather than self-efficacy. The procrastination measure needed to be collected as

close to the exam as possible but due to professor requests, ended up being collected immediately after the examination. The third round measures were collected in the class prior to the final exam and asked the students to rate their self-efficacy ratings for performance on the final exam as well as to predict the percentage they would obtain on the final examination. The second portion of the data collection measures for final examination was simply the administration of the five item Wolters' procrastination scale to assess whether the participant had procrastinated on that particular task. The researcher waited in the hallway outside the final examination room, and asked those students who were participating to fill out the survey as they were leaving the examination room.

After the students had completed the course, their grades on the term paper, final examination and their overall course grade were collected from the instructor.

Chapter III - Results

Reliability indices for measures included in this study were found to be acceptable and ranged from .86 to .95. Table 1 reports means, standard deviations, and reliability coefficients for general procrastination, self-efficacy for learning and performance, self-efficacy for self-regulated learning, test anxiety and writing anxiety and means and standard deviations for GPA. Means, standard deviations and Cronbach's alpha for measures that were administered or collected on more than one occasion (Wolters' procrastination scale, self-efficacy for performance in each academic domain, predicted grades and obtained grades), are listed in Table 2.

Table 1.

Means, Standard Deviations, and Reliabilities for Procrastination and Other Variables

	M	*SD*	*n*	α
General Procrastination	38.03	9.37	148	.88
SE for L and P	27.44	4.69	148	.90
SESRL	55.00	10.21	148	.86
TAI	38.28	12.91	148	.95
WA	70.94	18.96	148	.95
GPA	3.17	0.383	142	-

Note. General Procrastination: Tuckman Procrastination scale, SE for L and P: Self-efficacy for learning and Performance Scale, SESRL: Self-efficacy for self-regulated learning scale, TAI: Test anxiety inventory, WA: writing apprehension scale, GPA: estimated grade point average.

Table 2

Means, Standard Deviations, and Reliabilities for Repeated Variables

	Term Paper			Final Exam		
	M	*SD*	α	*M*	*SD*	α
Task Specific Procrastination	19.22	9.63 (n = 93)	.93	18.21	9.02 (n = 105)	.96
Task specific Self-efficacy	64.59	13.52 (n = 94)	.92	65.00	12.72 (n = 95)	.92
Grade Prediction	76.66	6.86 (n = 93)	_	76.85	7.74 (n = 93)	_
Actual Grade	73.70	14.07 (n = 142)	_	66.87	10.97 (n = 142)	_

Bivariate Correlations

Demographic variables were correlated with major variables in the study. The only two demographic variables that were significantly related to general procrastination were year in program ($r = -.17$, $p < .05$) and estimated GPA ($r = -.18$, $p < .05$). Table 3 lists correlations for the major variables included in this study.

Procrastination was measured at three points in the semester. A general procrastination scale (Tuckman, 1991) was administered to the students in the first week of classes. The students were then administered the task specific procrastination scale after handing in the paper and directly after completing the final examination. The general procrastination scale was significantly related to the other two administrations of task specific procrastination ($r = .51$, $p < .001$ paper; $r = .42$, $p < .001$ final). The relationship between general procrastination and self-efficacy for self-regulation ($r = -.64$, $p < .001$) reveals a potential negative impact of self-regulatory failure. Self-efficacy for self-regulated learning was also significantly inversely related with procrastination tendencies

on the term paper ($r = -.49, p < .001$) and final exam ($r = -.28, p < .01$). Procrastination was found to be significantly inversely related with self-efficacy for learning and performance but only in relation to general procrastination ($r = -.22, p < .01$). No significant relationship was found between self-efficacy for learning and performance task specific procrastination.

Variables that were related to self-efficacy for performance on the paper were: procrastination ratings on the paper ($r = -.21, p < .05$), self-efficacy for learning and performance ($r = .25, p < .05$), and writing apprehension ($r = -.28, p < .05$). Surprisingly test anxiety was also significantly related to the student's self-efficacy rating for the paper ($r = -.30, p < .05$). Self-efficacy for performance on the final exam was positively related to self-efficacy for learning and performance ($r = .29, p < .05$) and negatively related to self-efficacy for self-regulated learning ($r = -.21, p < .05$) and writing apprehension ($r = -.23, p < .05$).

General procrastination was significantly positively related to test anxiety ($r = .29, p < .001$) and writing apprehension ($r = .31, p < .001$). Test anxiety was significantly negatively related to self-efficacy for learning and performance ($r = -.54, p < .001$) and self-efficacy for self- regulated learning ($r = -.21, p < .01$). Similarly, writing apprehension was also significantly related to self-efficacy for learning and performance ($r = -.27, p < .001$) and efficacy for self-regulated learning ($r = -.33, p < .001$). Neither test anxiety nor writing apprehension was related to task specific procrastination ratings.

The students were asked to predict their grade, in percentage, for the term paper and final. Grade predictions were related most closely with self-efficacy performance ($r = .69, p < .001$; $r = .74, p < .001$ for the paper, and final exam respectively). Self-efficacy

for self-regulation was related to grade prediction on the paper ($r = .25, p < .05$) but not for the final ($r = .11, p = ns$). Test anxiety was not related to grade prediction for the paper ($r = -.15, p = ns$) but was related to grade predictions on the final examination ($r = -.31, p = .01$). In addition to being asked to predict their grades specifically on the paper, and final examination, the students were asked to predict their overall course grade. Overall, predicted grade was significantly related to general procrastination ($r = -.19, p < .05$), self-efficacy for learning and performance ($r = .52, p < .001$), self-efficacy for self-regulated learning ($r = .29, p < .05$), Test anxiety ($r = -.29, p < .001$), writing apprehension ($r = -.32, p < .001$), and self-efficacy for performance the paper and final ($r = .46, p < .001$; $r = .51, p < .001$ respectively). In addition, general procrastination was related to overall obtained grade in the course ($r = -.17, p < .05$).

The student's actual grades were collected for the final examination, the term paper as well as the student's overall grade in the course. Self-efficacy for learning and performance was significantly related to all grades. Self-efficacy for self-regulated learning was related to overall grade ($r = .18, p < .05$) but wasn't significantly related to the paper or final exam grade. Writing apprehension ($r = -.19, p < .05$) was related to paper grade and test anxiety was related to overall grade ($r = -.22, p < .01$) but not to the obtained final exam grade.

Paired T-tests

There were three measures that were repeated in this study. Task specific procrastination, self-efficacy for performance on specific tasks, and the student's grade predictions were each measured in relation to both the term paper and final examination. It is important to note that due to the nature of collecting data in classes from

undergraduate students, repeated measures employed in this study had fluctuating sample sizes due to students missing classes or coming late.

Having a procrastination score above the midpoint was used as indication of procrastinatory behavior. Seventy-one percent of the students in the sample reported procrastinating in a general sense, 55% percent reported procrastination on the term paper and 47% reported that they had procrastinated on preparation for the final exam. In addition, it was also of interest to investigate whether there were significant differences in reported procrastination on the term paper and final examination. Results of a paired t-test indicates that there were no significant differences in reported procrastination between the final examination and term paper, $t(\ 76) = 1.91, p = .06$.

The other two measures that were repeated in this study were self-efficacy for performance on the term paper and final exam and grade predictions (in percent) on the term paper and final. Results of the paired t-tests indicated that there was no significant difference between self-efficacy ratings for performance within these two task domains, $t(74) = 0.03, p > .05$. There were also no significant differences found between grade predictions within the two task domains, $t(70) = 0.02, p > .05$.

Regression Analyses

To determine the significant predictors of procrastination on specific academic tasks, standard multiple regression was used. First, it was of interest to investigate the significant predictors of general procrastination. From the bivariate correlation data above, variables related to general procrastination were selected for the regression model. As both GPA and year in program were found to be related to general procrastination these two variables were controlled for in the regression model.

Table 3.

Correlations for Procrastination, and other major variables.

	Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1.	General Proc	_														
2.	Paper Proc	.51**	_													
3.	Final Proc	.42**	.49**	_												
4.	Self-Efficacy for L and P	-.22**	.06	.14	_											
5.	SE for Self-Regulation	-.64**	-.49**	-.28*	.39**	_										
6.	Test Anxiety	.29**	-.17	-.00	-.54**	-.21**	_									
7.	Writing Apprehension	.31**	.08	.10	-.27**	-.33**	.37**	_								
8.	Paper SE	-.18	-.21*	-.09	.25*	.19	-.30**	-.28**	_							
9.	Final SE	-.17	-.14	-.11	.29*	.21*	-.16	-.23*	.67**	_						
10.	Paper Grade Prediction	-.17	-.21*	-.01	.04	.25*	-.16	-.33**	.69**	.45**	_					
11.	Final Grade Prediction	-.09	.14	.03	.44**	.11	-.31**	-.21*	.56**	.74**	.56**	_				
12.	Overall Grade Prediction	-.19*	-.11	-.04	.52**	.29**	-.29**	-.32*	.46*	.51**	.56**	.67**	_			
13.	Actual Paper Grade	-.12	.07	.04	.25**	.14	-.19*	-.19*	.34*	.21*	.28**	.30**	.25**	_		
14	Actual Final Exam Grade	-.15	.07	-.10	.27**	.08	-.13	-.14	.40**	.39**	.35**	.52**	.32**	.44**	_	
15.	Actual Overall Grade	-.17*	.04	-.05	.34**	.18*	-.22	-.15	.45**	.44*	.42**	.61**	.41**	.73**	.88**	_

*$p < .05$, **$p < .01$

In addition, there were no clear theoretical reasons to enter the variables in a sequential manner, therefore the variables: GPA and year in program were entered as the first block and self-efficacy for learning and performance, self-efficacy for self-regulated learning, test anxiety, and writing apprehension, were entered as the second block. The results of the analyses indicated that, after controlling for GPA and year in program, self-efficacy for self-regulated learning was the strongest predictor of general procrastination ($\beta = -.646$, $p < .001$), followed by test anxiety ($\beta = .262$, $p < .001$) and self-efficacy for learning and performance ($\beta = .208$, $p < .01$), $R^2 = .486$, $F(6,135) = 19.09$, $p<.001$). Year in program also remained a significant predictor of general procrastination, ($\beta = -.14$, $p<.05$). Writing apprehension was found to have a non-significant beta weight. The results indicate that self-efficacy for self-regulated learning, test anxiety and self-efficacy for learning and performance significantly improves the predictability of the tendency to procrastinate above GPA and year in program, $\Delta R^2 = .427$, $F(4,135)= 28.08$, $p < .001$.

Second, it was of interest to investigate what influences procrastination at each domain level. Standard multiple regression was employed using significantly correlated variables from the bivariate analyses above. Regression analysis was used to investigate the predictors of procrastination in two academic domains; test writing and term paper writing. The first regression analyses attempted to predict procrastination on writing the term paper from self-efficacy for self-regulated learning, general procrastination, self-efficacy for performance on the paper, and predicted grade entered as a single block. The results indicated that two predictors were significant: general procrastination ($\beta = .323$, $p < .01$) followed by self-efficacy

for self-regulated learning ($\beta = -.259$, $p < .05$), $R^2 = .325$, $F(4, 87) = 10.49$, $p < .001$. For predicting procrastination on the final exam, the only predictors entered into the equation were general procrastination and self-efficacy for self-regulated learning. The only significant predictor of procrastination for the final examination was general procrastination ($\beta = .393$, $p < .001$), $R^2 = .175$, $F(2, 104) = 10.82.50$, $p < .001$).

Prediction of Achievement

With the exception of the relationship between general procrastination and overall course grade ($r = -.17$), procrastination was not significantly related to achievement. Therefore, it was of interest to investigate the other variables to see which, if any, were predictive of achievement. To predict final examination grade, GPA was controlled for on the first block and self-efficacy for learning and performance, and self-efficacy rating for performance on the final were entered into the equation as a second block. In this case, only self-efficacy rating for performance on the final was a significant predictor of final exam achievement ($\beta = .290$, $p < .001$), $R^2 = .212$, $F(2, 83) = 7.43$, $p < .001$). Self-efficacy for performance on the final exam contributed a significant amount of variance to examination achievement above the variance contributed by GPA, $\Delta R^2 = .069$, $F(2, 83) = 3.64$, $p < .05$. To predict paper grade, GPA was controlled for on the first block while self-efficacy for learning and performance, writing apprehension, self-efficacy rating for performance on the paper were entered into the equation as a second block. None of the variables significantly predicted paper grade above GPA, $\Delta R^2 = .058$, $F(3, 82) = 1.96$, $p > .05$. Finally to predict overall course grade, GPA was controlled for on the first block and the self-efficacy for performance, self-efficacy for self-regulated learning, self-efficacy

ratings for term paper performance and self-efficacy ratings for performance on the final were included as a second block. Similar to results from the term paper regression equation, none of the variables significantly predicted overall course grade above what is predicted by GPA, (β= .342, $p < .01$).

Calibration

The degree of miscalibration between predictions and performance was assessed using paired t-tests. Three t-tests were conducted (paper, final and overall grade) and the Bonferroni correction was employed which changed the significance level from .05 to .01, in order to ensure the overall experimentwise probability of type I errors was not more than .05 (Glass & Hopkins, 1996). Using procedures described by Klassen (2007) miscalibration was determined by a significant difference in means from predicted to actual performance. A non-significant difference was used to indicate that students were accurate in their predictions. The degree of inaccuracy in scores is reported as a percentage (the difference between predicted grade and actual grade).

Paired t-tests indicated that there was a significant difference between grade prediction on the final exam (M = 76.97, SD = 7.77) and performance (M = 68.69, SD = 11.11), $t(90) = 8.15$, $p < .001$, $d = .86$, where the students overestimated their scores on the final examination by an average of 8.3%. Students also significantly overestimated their performance in the course (predicted: M = 79.09, SD = 5.67, performance: M = 72.20, SD = 8.88) as a whole by 6.9%, $t(136) = 9.60$, $p < .001$, d = .92. The students were most accurate with their predictions on the term paper $t(88) = .553$, $p > .05$. Table 4 summarizes these results.

Table 4.

Accuracy of predictions.

	Term Paper	Final Examination	Overall Course Grade
Predictions	Accurate (+1.07%)	Overestimate (+8.3%)	Overestimate (+6.9%)

One of the research questions asked whether those that were inaccurate in their predictions tended to also have higher procrastination tendencies in each domain. To evaluate this, the actual scores in each task domain were subtracted from the predicted score obtained on that task resulting in both positive and negative values. Positive values represented overconfidence, and negative values which represented underconfidence and accuracy would be equal to zero. In order to determine if the significant overconfidence on the final exam as well as the significant overconfidence in the overall course grade was related to procrastination, those that overestimated their performance by more than 8.3 percentage points on the final exam (i.e. average difference between predicted and actual scores) were selected for further analysis. Therefore in order to create a "miscalibrated" group, those that overestimated their performance on the final exam by 8.3% or more were selected (n = 39) and compared to those who accurately predicted their score (n = 38). Those that underestimated their scores were not included. Independent samples t-test between the accurate group and overconfident groups were conducted for self-efficacy for learning and performance, self-efficacy for self-regulated learning, test anxiety, final exam procrastination, and general procrastination. No significant differences between the two groups were found.

Similarly, in order to determine if significant overconfidence in overall performance in the course was related to procrastination, those that overestimated their overall performance by 7 percentage points or more were selected (n = 64) and compared to those who were accurate in their overall course grade predictions (n = 45) on the following variables: self-efficacy for learning and performance, self-efficacy for self-regulated learning, test anxiety, writing apprehension, paper procrastination, final exam procrastination, and general procrastination were conducted. Again, none of the variables differed significantly between the two groups.

Chapter IV - Discussion

The current study was designed with two general purposes. The first was to discover the relationships among motivational variables and procrastination. Previous studies had problems demonstrating correspondence between the domain and motivation beliefs, i.e. between the task and self-efficacy and procrastination. This study sought to assess self-efficacy, procrastination and performance in context-specific academic situations in which the students were assumed to have real consequences of poor performance (i.e. low grades, failing the course). A main goal was to investigate if students' perceived self-efficacy for a task was related to procrastination and subsequent performance on that same task. The secondary purpose of this study was to investigate if the accuracy of beliefs was related to procrastination.

Self-Efficacy and Procrastination

Some interesting relationships emerged between self-efficacy and procrastination. First, general procrastination tendencies were negatively related to self-efficacy for learning and performance, self-efficacy for self-regulated learning, and the student's overall predicted grade. This finding suggests that students who have lowered beliefs indeed tend to procrastinate more and expect to do worse in their course work. This finding is consistent with previous studies which found that academic self-efficacy and self-efficacy for self-regulated learning were related to procrastination (Klassen, 2007; Wolters 2003,). Klassen et al. (in press) found that the strength of the relationship between self-efficacy for self-regulated learning was strong and provided the most power in terms of predicting procrastination. Using

regression analysis, this current study also found academic self-efficacy to be a significant predictor of general procrastination. Self-efficacy for self-regulated learning was the strongest predictor second only to test anxiety and self-efficacy for learning and performance. In further support of the findings of Klassen et al. (in press), self-efficacy for self-regulated learning was significantly related to procrastination in all three task specific areas. Senecal, Koestner, and Vallerand (1995) found that while measures of depression, self-esteem, and anxiety accounted for approximately 14% in the variance of academic procrastination, self-regulation measures accounted for 25%. In the current study it was found that self-efficacy for self-regulated learning accounted for approximately 37% of the variance in general procrastination. The results of the current study add to the findings of Senecal et al., 1995, and Wolters 2003, in that self-regulation is important to the study of procrastination. Procrastination has been described as self-regulatory failure (Steel, 2007) but recent findings suggest that beliefs in our ability to implement cognitive and metacognitive strategies can be a critical factor in the study and, perhaps remediation of procrastination behaviors. Klassen et al. (in press) concludes that it is not only important to possess skills in self-regulation but also beliefs in one's abilities to implement these strategies. Student must believe that they have the capabilities to organize their learning environment and execute the appropriate learning strategies in order to avoid task postponement. The results of the current study provide additional support for this conclusion.

Procrastination and Task Domains

A unique variant of the current study is that not only was procrastination measured in a general sense, after each academic task (paper and final exam) procrastination was measured again to see if students had specifically procrastinated on preparing for the exam or for writing the paper that were requirements of their course. The first result worth noting is the strong positive relationship between general procrastination and both the task specific measures of procrastination. This result indicates that students who were are likely to demonstrate a general tendency towards procrastination, indeed were more likely to report procrastinating in relation to the final exam and the paper. The result also provides evidence of concurrent validity for both types of measures.

Next the motivational variables that are related to each task domain are discussed. In terms of variables that were related to procrastination on the final exam, the only related variable was self-efficacy for self-regulated learning. Non-significant relationships were found between procrastinating on the final exam and self-efficacy for learning and performance, test anxiety, writing apprehension, and self-efficacy for performance on the final exam and final exam grade. Interestingly, more motivation variables played an important part in relation to procrastination on the paper. There was an inverse relationship with self-efficacy for self-regulated learning, self-efficacy for performance on the paper, as well as prediction of grade. As noted previously, these results indicate that in the investigation of procrastination, a common and important variable to consider is self efficacy for self-regulated learning. It also indicates that whether investigating procrastination in a general sense or in a specific

domain area, self-efficacy for self-regulated learning needs to be considered a variable of interest.

An important hypothesized relationship between self-efficacy for performance and procrastination in task specific situations was not supported. The relationship was found to be mildly negative for the paper and non-significant for the exam. Despite the strong relationship that self-efficacy has on behavior, the strength of the beliefs was seemingly unrelated to whether the students procrastinated on exams. It is difficult to derive a possible reason as to why self-efficacy for performance on the paper was related to procrastination on the paper but not to the exam. Bandura's (1997) assertion, that students avoid those activities in which they feel less confident, partially explains the reason that students avoid paper writing but does not explain why this relationship was found for paper writing and not for exams. As term paper writing can be a time consuming and complex task that requires knowledge of effective writing skills, perhaps students are less confident in their ability to produce a quality product and thus avoid it. In addition, term papers are graded subjectively which introduces an element of uncertainty in how ones skills will "measure up" to the professors' expectations. On the other hand, the skills required for exam writing are often clearer (i.e. answering multiple choice questions) and grades are assigned objectively. Perhaps these differences between task demands may explain students beliefs in their abilities may be related to their degree of task avoidance on the paper but not for the exam. As was seen with the paired t-test, there were no significant differences in the achievement scores for procrastination between the paper and final. Therefore, the notion that students were more likely to procrastinate on exams than

they were on the paper (or vice versa) was not supported. Perhaps because writing a term paper is an area where many students report that procrastination is a problem (Schraw, Wadkins, & Olafson, 2007, Solomon & Rothblum, 1984; Fritzsche, Young & Hickson, 2003), self-efficacy beliefs for performance may play a greater role in paper writing than tests. However, this assertion would need to be re-tested in a replication study.

Another unexpected non-significant result was that of self-efficacy for learning and performance, and procrastination in each domain area. A probable explanation for this finding is that the measure of self-efficacy for learning and performance is a global measure and thus did not correspond well with the specific nature of the procrastination measure. Another potential issue is that of fluctuating sample size which will be discussed in more detail in the limitations section.

As part of the goal to understand procrastination as it functions in each task domain, an attempt was made to use some of the variables to predict procrastination in each task domain. Due to some non-significant relationships found in the study, only a few of the possible variables were used. In terms of prediction of procrastination on term paper writing, two predictors were significant, general procrastination and self-efficacy for self-regulated learning. For the final exam, general procrastination and self-regulated learning were hypothesized to be significant predictors of procrastination; however only general procrastination was found to be a predictor. As just discussed, when it comes to procrastination, it appears that self-efficacy beliefs perhaps have a greater role in paper writing than in exam preparation. What can be drawn from this is that at the very least, one can see that

procrastination and motivation do indeed vary by task. Perhaps the reason is that different tasks require different amounts of self-regulatory knowledge. Further investigation into task type, motivational variables, and procrastination is obviously still required.

Procrastination, Test Anxiety and Writing Apprehension

General procrastination was also significantly related to test anxiety and writing apprehension, which is consistent with previous studies (Ferrari et al., 1995; Haycock et al., 1998; Rothblum et al., 1986; Cassady & Johnson's, 2001; Fritzche et al., 2003). However, it was important to note that non-significant differences were found when task specific procrastination was measured in relation to test anxiety and writing apprehension. It is possible that procrastination and test anxiety and writing apprehension are related in a general sense. In this study, test anxiety and writing apprehension were measured in a global format, and procrastination in a specific domain area. Perhaps there was inadequate correspondence between the anxiety measures and tasks. This would explain why general procrastination and the anxiety measures reached significance while task specific procrastination and anxiety did not. Even though procrastination is not always taken seriously, its relationship to anxiety and writing apprehension demonstrate the negative aspects of procrastination. As this finding is a correlational finding, it is not possible to determine whether it is the postponement of the task that causes anxiety or whether anxiety is responsible for the delay in commencement. Perhaps there is a cyclical pattern for those that have difficulty with procrastination, anxiety and writing apprehension. The negative effects of procrastination are the most important for practitioners, and thus, future studies

need to determine causation and the degree to which anxiety affects individuals tendency towards procrastination.

Procrastination and grades

There are often mixed findings as to the negative effect of procrastination on performance. In a meta-analysis by Steel (2007), it was found that there was a weak, but consistently negative correlation between performance and procrastination. In addition, Steel (2007) also finds that procrastination is usually negatively related to GPA, course grades, assignment marks and final exam scores. In Schraw's (2007) qualitative study, 80% felt that procrastination has little or no effect on the grades they were able to obtain. The other 20% of people actually felt that there was a positive relationship between the two.

The current study also finds contradictory evidence in the relationship between procrastination and performance. A negative effect of procrastination can be seen in the significant inverse relationship between procrastination and predicted overall grade and overall obtained grades. Similar to results in the Klassen (2007) study, general procrastination was related to students predicting and obtaining lower overall course grades. This result is also strengthened by the fact that procrastination is also inversely related to GPA. Similarly, there was also a small but significant inverse relationship between predicted grade and procrastination on the paper. All other correlations between procrastination and academic achievement were non-significant. Therefore, consistent with previous results, there may not be a negative effect of procrastination on academic achievement, and if there is, the effect is mild at

best. One must be cautious as there is the potential for a negative impact on performance, however.

Since it was previously found that procrastination was weakly related to and mildly predictive of achievement, it was important to investigate other motivational variables in this study that contributed to academic performance. Self-efficacy for learning and performance was significantly related to grades on the final, term paper and overall grade. Self-efficacy for learning and performance is a general measure of self-efficacy that indicates the students' strength in their beliefs in their capabilities to succeed in their course work. This is consistent with Bandura's (1997) contention that self-efficacy beliefs are important to academic success. Interestingly, self-efficacy for self-regulation has been found to be an important factor in warding off procrastination but self-efficacy for learning and performance was not related. It was found that self-efficacy for self-regulation only had a small relationship to grades and only to overall grade. Therefore, when speaking of the merits of higher self-efficacy beliefs for self-regulation, one may see a reduction in procrastination behaviors and perhaps a reduction in test anxiety and writing apprehension (which are also inversely related to self-efficacy for self-regulation) but not necessarily an increase in grades. One might investigate a moderation hypothesis. For instance, a possible avenue for further investigation could be into the strength or the nature of the relationship we see between anxiety, writing apprehension and grades which could potentially be moderated by self-efficacy for self-regulation.

Calibration

The second purpose of this study was to investigate whether the accuracy of students beliefs affected their procrastination patterns or performance. Pajares (1996) indicated that most students are mildly overconfident in their self-efficacy belief for performance on tasks. Bandura (1986) indicated that it is good for people to have slightly overconfident beliefs but that too much overconfidence may cause difficulties. The current study investigated accuracy of beliefs in task domain. It was found that students were accurate in their prediction of ability for writing a paper, were overconfident for the final exam, and overconfident for their performance in the course as a whole. Given the non-significant results between procrastination and task specific self-efficacy discussed above, the most significantly miscalibrated were selected for analysis. Given the small sample sizes and the finding that self-efficacy was not found to be related to task specific procrastination in the current study, it was not surprising that procrastination was not significantly related to miscalibration. This however does not mean that there is no relationship between self-efficacy accuracy and procrastination. For instance, in a qualitative portion of a mixed methods study (Klassen et al. 2007), some students indicated that sometimes they imagine things to be easier than they really are and don't anticipate any obstacles which leads them to procrastination. It is apparent that self-efficacy beliefs at least play some role in procrastination and thus the issue of procrastination and miscalibration should be revisited.

Applications for Practitioners

For those who provide assistance to problem procrastinators, it is important to be aware that instructing students how to avoid task postponement may not be enough. Students need to be taught to employ metacognitive learning strategies and to experience success using them in order to strengthen their self-efficacy beliefs. It is of crucial importance that when assisting students to overcome procrastination, they are taught to effectively and confidently navigate and organize their learning environment. In addition, it is important to note that procrastination and motivation may not operate equally in differing academic domains and thus, procrastination should not only be regarded as a general tendency but as also as a context or task specific phenomenon.

Often in an academic setting, students seek remediation of problem behaviors with the expectation that they will have a subsequent increase in grades. However, practitioners must be aware that students whom they are assisted in preventing procrastination will not necessarily see this desired improvement in grades. What a student can better expect is that they will experience less stress or anxiety associated with the task when procrastination is reduced. The reduction in stress or anxiety related to the task may lead to better performance. In addition, since it is unclear whether anxiety and writing apprehension is the cause or consequence of procrastination, perhaps practitioners should focus on reducing negative or anxious feelings towards tasks rather than just reducing the task-avoiding behavior. It is doubtful that early and thorough task completion would be harmful. Therefore assisting students to avoid task delay is likely to their benefit.

Limitations and Future Directions

There are several limitations to the current study. Most limitations surround the sample used for this study. First, the demographic of the students was predominately female, Canadian born, education students, which limits the generalizability to other student groups. Further investigation among cultures and perhaps procrastination patterns across university disciplines would be a welcome addition to the current research in this area. Second, the classes selected for participation in this study were included because they had at least two important components, a final examination and a term paper. The selection criteria limited the amount and types of classes that were included in the study which again may affect the generalizability of the results. The tasks and grades assigned were assumed to have great importance to all the students but this assumption could be false. It is possible that people were happy with a minimal pass in the course and even though it was found that many students reported a high tendency to procrastinate, there was not necessarily the detrimental effect on grades. Third, the data was self-report data and thus there could be a potential for bias when responding. The students were aware that the researchers would be returning to collect information on procrastination patterns several times throughout the semester and thus, participation in the study could have acted as a cue to avoid procrastination or alternatively to report more procrastination than the students actually display in order to feel that they were satisfying the researcher's hypotheses. Although it is difficult to avoid some bias in self-reports, this is the most common way to gather data of this type, and it is believed that appropriate steps were taken to minimize this bias. The students, were told that

responses were completely confidential, only student ID needed to be reported and not names. Since students could feel uncomfortable with responding honestly in the presence of their professors, so at each data collection point, both the researcher and professors indicated that the professor under no circumstance would have access to the data. Also in the presence of the instructor, all students were given forms whether they were participating or not. Those who were not participating needed only to hand the survey back blank and thus, the professor would not know which students were participating and which were not.

A third limitation of the current study was that of fluctuating sample size. Given the nature of the research design in which there were numerous data collection points, one was not able to have consistent sample sizes across all analyses. Undergraduate students sometimes miss classes and come late or leave very quickly from exams. Therefore, sample size fluctuated from a high of 148 participants initially to as low as 77 for certain variables. It should be noted that although the research had approximately an 85% participation rate and no students chose to completely withdraw from the study, the missing data were likely not related to problems with participation in the project or unwillingness to complete the surveys. In an effort to maintain adequate numbers, students were reminded when the researcher would be present to collect data in hopes that if they were participating, they would attend the class. The professors indicated that on any given day, they usually have between 20-40 or more students who are not present in the classroom and that attendance has become even more scarce due to the common practice of posting class notes and lectures on the web. Another issue related to missing participant data is that

it is possible those that have a tendency to be late or miss classes are also prone to procrastination and thus, those that procrastination most seriously affects were not included in many of the analyses whereas those who are less likely to procrastinate were. Although this was an unfortunate limitation of the current study, it was a difficult issue to avoid. Perhaps future studies may consider administering survey measures electronically via e-mail which would give the student an opportunity to participate and submit their data regardless of whether they had missed an actual class.

Conclusions

Often when discussing procrastination or proposing procrastination as an important area for research, students laugh and offer themselves to be research participants. However, behind the laughter there are individuals who are depressed, stressed, and anxious due to task delay. Procrastination has been shown to be common and, at times, debilitating. Procrastination needs to be seen as a valid and research worthy psychological construct. Although procrastination may not have as grave consequences as some other psychological phenomena, it is definitely a construct that warrants further attention. Perhaps some students are more affected than others and they may have the very negative repercussions of having to drop a class, hand in late assignments, or fail while other students procrastinate with no obvious detriment. From qualitative studies (e.g. Klassen et al, 2007), we see that students with learning disabilities may be one of the groups that find procrastination significantly contributes to their academic struggles within the university environment. It is necessary to continue to decipher the ways in which

procrastination operates and for whom it is the most serious. Motivational variables and the way they operate amongst students may be the key.

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Appendix

Survey

Information Letter/Consent Form

Dear Participant,

I am a graduate student in the Department of Educational Psychology at the University of Alberta. I am requesting your consent to participate in a research project entitled "Procrastination, Self-Efficacy Calibration, Anxiety, and Achievement in Undergraduate Students". Your participation in this project will assist me in fulfilling the requirements for my Master's thesis.

Participation in this project is completely voluntary. If you choose to take part in this study, you will complete a brief survey (takes approximately 10-15 minutes) attached to this page and then three other brief surveys (approximately 5 minutes each) at separate times in the semester. The surveys will ask you a variety of questions about motivation (like confidence), anxiety and procrastination. You will also be asked to rate your confidence and predict your score for the final examination and term paper as well as the final grade in this course. With your permission your grades for the final exam, term paper and final grade in this course will be collected from your instructor.

If you choose to participate in this study you will be guaranteed confidentiality. Students will be identified by University of Alberta Student ID number only during data collection and then given a case number in the database to create anonymity. The professor of your course will not be allowed to view participant survey responses and participation in this study will not affect your grade for this course whatsoever. You have the right to withdraw from participation at any time, without penalty, you may also contact me at anytime to withdraw your data from the project. No names or student ID numbers will be included in the final report. The data will be kept in a secured storage space for a minimum of 5 years after the study is completed. Only the primary researcher and the research supervisor will have access to the data.

Although there is no direct benefit to you from participation in this study, data collected from this study will assist researchers and educators in further understanding the relationship between motivation and procrastination patterns in undergraduate students. The results of this study may be presented at academic conferences and published in research journals.

For further information about this project you may contact me or my research supervisor Dr. Robert Klassen at 492-9170.

The plan for this study has been reviewed for its adherence to the ethical guidelines and approved by the Faculties of Education and Extension Research Ethics Board (EE REB) at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the chair of the EE REB at 780-492-3751.

Lindsey Krawchuk
Graduate Student
Department of Educational Psychology
llk1@ualberta.ca

IF YOU WISH TO PARTICIPATE PLEASE FILL OUT QUESTIONNAIRE. FILLING OUT THE QUESTIONNAIRE WILL REFLECT YOUR CONSENT. FEEL FREE TO DETACH THIS PAGE FOR YOUR INFORMATION. THANK YOU!

First Round Data Collection

STUDENT ID NUMBER:_____ **PROGRAM OFSTUDY:**_____

AGE: _____ **YEAR IN PROGRAM:**_____

SEX (Circle One): **M** **F** **ESTIMATED GPA:**_____

COUNTRY OF BIRTH:_____

Section A
Please mark the box that best describes you

1	2	3	4	5	6	7
Not At All true of me						Very true of me

	1	2	3	4	5	6	7
1. I am confident I can understand the most difficult material presented in the readings for this course.							
2. I am confident I can understand the basic concepts presented by the instructor in this course.							
3. I am confident I can understand the most complex material presented by the instructor in this course.							
4. I am confident I can do an excellent job on the assignments and tests in this course.							
5. I'm certain I can master the skills being taught in this course.							

Please respond to the following questions by marking the box that best describes you.

1	2	3	4	5	6	7
Not Well at All						Very Well

How well can you...	1	2	3	4	5	6	7
1. Finish assignments by deadlines?							
2. Study when there are other interesting things to do?							
3. Concentrate on your classes?							
4. Take class notes during class?							
5. Use the library to get information for class assignments?							
6. Plan your coursework?							
7. Organize your coursework?							
8. Remember information presented in class and textbooks?							
9. Arrange a place to study without distractions?							
10. Motivate yourself to do your coursework?							
11. Participate in class discussions?							

Please respond to the following questions by marking the box that best describes you.

1	2	3	4
That's really not me			**That's me for sure**

	1	2	3	4
1. I needlessly delay finishing jobs, even when they're important				
2. I postpone starting in on things I don't like to do				
3. When I have a deadline, I wait until the last minute				
4. I delay making tough decisions				
5 I keep putting off improving my work habits				
6. I manage to find an excuse for not doing something				
7. I put the necessary time into boring tasks, like studying				
8. I am a hopeless time waster				
9. I'm a time waster and I can't seem to do anything about it.				
10. When something is too tough to tackle, I postpone it				
11. I promise myself I'll do something but then don't do it				
12. Whenever I make a plan of action, I follow it				
13. Even though I hate myself if I don't get started, it doesn't get me going				
14. I always finish important jobs with time to spare				
15. I have a hard time getting started				
16. I try not to put things off until tomorrow				

NEXT PAGE PLEASE

Please respond to the following questions related to test taking by marking the box that best describes you.

1	2	3	4
Almost Never	Sometimes	Often	Almost Always

	1	2	3	4
1. I feel confident and relaxed while taking tests				
2. While taking final examinations I have an uneasy upset feeling.				
3. Thinking about the grade I may get in a course interferes with my work on tests.				
4. I freeze up on important exams.				
5. During exams I find myself wondering whether I will ever get through school.				
6. The harder I work at taking a test, the more confused I get.				
7. Thoughts of doing poorly interfere with my concentration on tests.				
8. I feel very jittery when taking an important test.				
9. Even when I am well prepared for a test, I feel very nervous about it.				
10. I start feeling very uneasy just before getting a test paper back.				

Please respond to the following questions by marking the box that best describes you.

1	2	3	4
Almost Never	Sometimes	Often	Almost Always

	1	2	3	4
1. During tests I feel very tense.				
2. I wish examinations did not bother me so much.				
3. During important tests I am so tense that my stomach gets upset.				
4. I seem to defeat myself while working on important tests.				
5. I feel very panicky when I take an important test.				
6. I worry a great deal before taking an important examination.				
7. During tests I find myself thinking about the consequences of failing.				
8. I feel my heart beating very fast during important tests.				
9. After an exam is over I try to stop worrying about it but I can't.				
10. During examinations I get so nervous that I forget facts I really know.				

Please respond to the following questions related to writing using this scale

1	2	3	4	5
Strongly Disagree				**Strongly Agree**

	1	2	3	4	5
1. I am nervous about writing					
2. People seem to enjoy what I write					
3. I like to have my friends read what I write					
4. I expect to do poorly in writing classes even before I enter them					
5. I don't think I write as well as most other people					
6. It's easy for me to write well on writing projects					
7. I feel confident in my ability to clearly express my ideas in writing					
8. I would enjoy submitting my writing to a professional journal for evaluation and publication					
9. I have no fear of my writing being evaluated					
10. Writing is a lot of fun					
11. I look forward to writing down my ideas					
12. I don't like my writing projects to be evaluated					

Please respond to the following questions related to writing using this scale

1	2	3	4	5
Strongly Disagree				**Strongly Agree**

	1	2	3	4	5
1. When I hand in a writing project I know I am going to do poorly					
2. I avoid writing					
3. I like to write my ideas down					
4. I never seem to be able to clearly write down my ideas					
5. Expressing ideas through writing seems to be a waste of time					
6. I have a terrible time organizing my ideas in a writing course					
7. I enjoy writing					
8. I like seeing my thoughts on paper					
9. Handing in a writing project makes me feel good					
10. I am afraid of writing papers when I know they will be evaluated					
11. My mind seems to go blank when I start to work on a writing project					
12. Discussing my writing with others is an enjoyable experience					
13. I'm no good at writing					
14. Taking a writing course is a very frightening experience					

I PREDICT THAT I WILL GET _____% IN THIS COURSE,
(Indicate what you predict your final score for this course will be, in percentage)

I PREDICT THAT I WILL GET AN (Circle one) AS A FINAL LETTER GRADE IN THIS COURSE	A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F

THANK-YOU FOR YOUR PARTICIPATION!!!!! **END**

Second Round Data Collection

STUDENT ID NUMBER:_____

Please rate how confident you are that you can get each of the grades on your TERM PAPER?
Rate your degree of confidence by recording a number from 0 to 100 using the scale given below:

0	10	20	30	40	50	60	70	80	90	100
Cannot do at all					**Moderately Certain Can do**					**Highly Certain Can do**

	Confidence (0-100)
Get at least **45%** on the paper	_____
Get at least **50%** on the paper	_____
Get at least **55%** on the paper	_____
Get at least **60%** on the paper	_____
Get at least **65%** on the paper	_____
Get at least **70%** on the paper	_____
Get at least **75%** on the paper	_____
Get at least **80%** on the paper	_____
Get at least **85%** on the paper	_____
Get at least **90%** on the paper	_____
Get at least **95%** on the paper	_____
Get **100%** on the paper	_____

Please indicate what you predict (in percentage) you will get on the **TERM PAPER**_____

Please Fill Out Next Page

Please respond to the following questions by marking the box that best describes you.

1	2	3	4	5	6	7
Not Well at All						Very true of me

	1	2	3	4	5	6	7
I promised myself I would do something for the term paper, then put it off anyway							
I frequently put off getting started on the paper for this course.							
I often found excuses for not starting the paper for this course.							
I postponed doing the work for this paper until the last minute.							
I delayed researching for this paper even though I knew it was important.							

THANK-YOU FOR YOUR PARTICIPATION!!!!

END

Fourth Round Data Collection

STUDENT ID NUMBER:_____

Please rate how confident you are that you can get each of the grades on your FINAL EXAMINATION?

Rate your degree of confidence by recording a number from 0 to 100 using the scale given below:

0	10	20	30	40	50	60	70	80	90	100
Cannot do at all					**Moderately can do**					**Highly Certain can do**

	Confidence (0-100)
Get at least **45%** on the Final Exam	_____
Get at least **50%** on the Final Exam	_____
Get at least **55%** on the Final Exam	_____
Get at least **60%** on the Final Exam	_____
Get at least **65%** on the Final Exam	_____
Get at least **70%** on the Final Exam	_____
Get at least **75%** on the Final Exam	_____
Get at least **80%** on the Final Exam	_____
Get at least **85%** on the Final Exam	_____
Get at least **90%** on the Final Exam	_____
Get at least **95%** on the Final Exam	_____
Get **100%** on the Final Exam	_____

Please indicate what you predict (in percentage) you will get on the **Final Examination**_____.

Please Fill Out Next page

Please respond to the following questions by marking the box that best describes you.

1	2	3	4	5	6	7
Not true of Me						Very true of me

	1	2	3	4	5	6	7
I promise myself I would do something for the Final examination, but I will be likely put it off anyway							
I frequently put off getting started on the studying for the Final exams.							
I often will find excuses for not starting studying for the Final examination.							
I will likely postpone doing the work for the Final examination until the last minute.							
I will likely delay studying for the Final examination even though it is important.							

THANK-YOU FOR YOUR PARTICIPATION!

END